

REMARKS

In the Office Action mailed April 27, 2005, claims 9-13 were rejected under 35 U.S.C. §103(a) as unpatentable over Aoki et al. (U.S. Patent No. 4,903,114) in view of Gainey et al. (U.S. Patent No. 6,313,519) and Lacap, U.S. Patent No. 5,905,299.

Claims 1-8 and 20-27 had previously been cancelled.

Claim 9 is directed to a semiconductor package comprising an intermediate lead finger mounting substrate; a semiconductor die and an intermediate lead finger mounted on a first surface of the intermediate lead finger mounting substrate; a package lead; a bond wire having a first end coupled to the package lead, a second end coupled to a bond pad on the die and an intermediate portion attached to the intermediate lead finger mounting substrate; a heat sink coupled to a second surface of the intermediate lead finger mounting substrate; and a mold compound that encloses the die, a portion of the package lead, the bond wire, the intermediate lead finger and the heat sink.

In rejecting claim 9, the Examiner acknowledges that his primary reference, Aoki et al., does not disclose the use of a single bond wire running from the die to the package lead but relies on Gainey for such teaching. He also acknowledges that both Aoki and Gainey fail to teach a heat sink coupled to the second surface of an intermediate lead finger mounting substrate and the use of a mold compound but asserts that Lacap provides such teaching.

While Lacap does disclose the use of heat sink (614), he does not disclose the use of a heat sink on a side of an intermediate lead finger mounting substrate different from the side on which the semiconductor die is mounted. Indeed, Lacap does not disclose the use of any means for securing lead fingers at an intermediate point and, in particular, does not disclose the use of an intermediate lead finger mounting substrate.

Since Lacap does not disclose the use of an intermediate lead finger mounting substrate, he also does not suggest the specific structure claimed in claim 9 in which the heat sink is on one side of the intermediate lead finger mounting substrate and the semiconductor die is on the other side.

Since Lacap is concerned with improving the thermal performance of flatpack packages while Gainey and Aoki are concerned with supporting lead wires, there is also no suggestion in these references that the references be combined. Lacap simply does not mention the need for improving support for semiconductor bond wires and Aoki and Gainey do not address thermal performance issues. In the absence of any mention in one reference of

the problems addressed by the other reference(s), there is simply no suggestion that the references be combined and no motivation to combine them.

In the Office Action of April 27, 2005, the Examiner took the position that the reason to combine references need not be found in the references, citing the first paragraph of MPEP 2144. In arguing this way instead of pointing to any suggestion in the references for their combination, the Examiner concedes that no suggestion for their combination can be found in the references. Applicants respectfully disagree both with the Examiner's interpretation of the law and with its application to the present circumstances.

The Examiner's argument is an argument from hindsight. He has taken the elements of applicants' claim 9, located them in the prior art and asserted that these elements can be combined even though there is no suggestion in the cited prior art for their combination. The Examiner's schema of argument is expressly prohibited in numerous decision of the Federal Circuit. For example, in Heidelberger Druckmaschinen AG v. Hantscho Commercial Products, Inc., 21 F. 3d 1068, 30 USPQ 2d 1344 (Fed. Cir. 1993), the Federal Circuit warned:

"When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination." (emphasis supplied) 30 USPQ 2d at 1379.

Moreover, to prevent such hindsight arguments, the Federal Circuit has also required that there must not only be motivation to combine references but also motivation to combine the prior art teachings in the particular manner claimed:

"particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." In re Kotzab, 217 F. 3d 1365, 1371, 55 U.S.P.Q. 2d 1313, 1317 (Fed. Cir. 2000).

The Examiner concedes that the suggestion to combine these references is not to be found in the references. Neither is there any motivation to combine these references in the manner claimed. The Gainey and Aoki references make no mention of thermal issues. The Lacap reference makes no mention of packages that use intermediate lead fingers that are attached to intermediate portions of bond wires. As a result, there is no motivation in Gainey or in Aoki to add a heat sink of any sort to the packages they disclose and there is no motivation in Lacap to add an intermediate lead finger to the structures he discloses.

Merely to argue as the Examiner has done that heat sinks are widely used does not establish that there is any need to use them with intermediate lead fingers of the type disclosed by Gainey and Aoki and it does not establish that one skilled in the art would combine the elements of the cited references in the manner claimed by applicants.

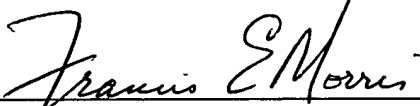
For these reasons, it is respectfully submitted that claim 9 is patentable over the cited references.

Dependent claims 10-13 are patentable for the same reason claim 9 is patentable.

For the foregoing reasons, applicants believe that all of the claims are now in condition for allowance and respectfully requests the Examiner to pass the subject application to issue. If for any reason the Examiner believes any of the claims are not in condition for allowance, he is encouraged to phone the undersigned at (212) 309-6632 so that any remaining issues may be resolved.

Respectfully submitted,

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